

IN THE CLAIMS

1. (Currently Amended) A method for processing information in a receiver of a multichannel optical communication system, comprising:

receiving a wavelength division multiplexed (WDM) signal having a symbol rate and comprising a plurality of phase modulated optical information signals having a minimum channel spacing that is greater than $(N+0.4)B$ and less than $(N+0.6)B$, where B comprises the symbol rate of the WDM signal and N is an integer;

demultiplexing the phase modulated optical information signals from the WDM signal;

converting each of the phase modulated optical information signals to an intensity modulated optical information signal using an asymmetric interferometer, wherein the asymmetric interferometer comprises two interferometer paths having a path length difference operable to create a one symbol period shift in the optical information signal and wherein the asymmetric interferometer has a wavelength dependent loss that increases the rejection of neighboring channels of the WDM signal when the channel spacing of the signal is greater than $(N+0.4)B$ and less than $(N+0.6)B$; and

recovering a data signal from the intensity modulated optical information signal.

2. (Previously Presented) The method of Claim 1, wherein the minimum channel spacing is substantially equal to $(N+0.5)B$, where B is the symbol rate of the WDM signal and N is an integer.

3. (Previously Presented) The method of Claim 1, wherein the symbol rate is a transmission bit rate of the WDM signal.

4. (Previously Presented) The method of Claim 1, wherein the asymmetric interferometer comprises an asymmetric Mach-Zehnder interferometer.

5. (Canceled)

6. (Original) The method of Claim 1, further comprising recovering the data signal as an electrical signal using a dual detector.

7. (Cancelled)

8. (Cancelled)

9. (Currently Amended) An optical receiver for a wavelength division multiplex (WDM) optical communication system, comprising:

a demultiplexer operable to demultiplex a wavelength division multiplex (WDM) signal into a plurality of phase modulated optical information signals, wherein the WDM signal comprises a symbol rate and the phase modulated optical information signals have a minimum channel spacing that is greater than $(N+0.4)B$ and less than $(N+0.6)B$, where B is the symbol rate of the WDM signal and N is an integer;

an asymmetric interferometer operable to receive a corresponding one of the plurality of phase modulated optical information signals, wherein the asymmetric interferometer comprises two interferometer paths having a path length difference operable to create a one symbol period shift in the optical information signal and wherein the asymmetric interferometer has a wavelength dependent loss that increases the rejection of neighboring channels of the WDM signal when the channel spacing of the signal is greater than $(N+0.4)B$ and less than $(N+0.6)B$;

the asymmetric interferometer operable to convert the phase modulated optical information signal into an intensity modulated optical information signal; and

a detector operable to recover a data signal from the intensity-modulated optical information signal.

10. (Cancelled)

11. (Previously Presented) The optical receiver of Claim 9, wherein the symbol rate is a bit rate of the WDM signal.

12. (Previously Presented) The optical receiver of Claim 9, wherein the asymmetric interferometer comprises a Mach-Zehnder interferometer.

13. (Original) The optical receiver of Claim 9, wherein the asymmetric interferometer comprises two interferometer paths having a path length difference operable to generate a one-bit shift in the optical information signal.

14. (Original) The optical receiver of Claim 9, wherein the detector comprises a balanced dual detector.

15. (Cancelled)

16. (Cancelled)

17. (Currently Amended) A method for communicating information in a wavelength division multiplexed (WDM) optical communication system, comprising:

transmitting each of a plurality of data signals using phase modulation of a wavelength disparate carrier signal, the carrier signals having a minimum channel spacing that is greater than $(N+0.4)B$ and less than $(N+0.6)B$, where B is the symbol rate of the WDM signal and N is an integer;

converting the phase modulation of the carrier signals into an intensity modulation using an asymmetric Mach-Zehnder interferometer, wherein the asymmetric interferometer comprises two interferometer paths having a path length difference operable to create a one symbol period shift in the optical information signal and wherein the asymmetric interferometer has a wavelength dependent loss that increases the rejection of neighboring channels of the WDM signal when the channel spacing of the signal is greater than $(N+0.4)B$ and less than $(N+0.6)B$; and

recovering the data signal using a detector coupled to an output of the Mach-Zehnder interferometer.

18. (Previously Presented) The method of Claim 17, wherein the asymmetric Mach-Zehnder interferometer comprises a path length difference of one bit and complementary outputs.

19. (Previously Presented) The method of Claim 18, wherein the detector is a dual detector coupled to the complementary outputs of the Mach-Zehnder interferometer.

20. (Previously Presented) The method of Claim 17, wherein the minimum channel spacing is substantially equal to $(N+0.5)B$, where B is the symbol rate of the WDM signal and N is an integer.